

CLONING OF LIPOXYGENASE-LIKE GENE FROM *PSEUDOMONAS AERUGINOSA* PA01

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Naturally occurring renewable fatty acids in vegetable oil and their chemical derivatives are industrial useful compounds. Castor oil contains greater than 85% of its fatty acid component as ricinoleic acid and is an industrial useful compound. About 100 million pounds of soapstock are produced in the United States annually. Soapstock is a plentiful and relatively inexpensive byproduct of edible oil refining. The acidulated soapstock contains about 15% of free fatty acids (primarily as oleic and linoleic acids). We are interested in promoting the cash value of soapstock by converting fatty acids in soapstock to value-added hydroxy fatty acid derivatives. We recently isolated a microbe, *Pseudomonas aeruginosa* 2HS, which is capable of transforming oleic acid to 10-hydroxy-8(E)-octadecenoic (HOD) and 7, 10-dihydroxy-8(E)-octadecenoic (DOD). The transformation of oleic to HOD and then DOD has been proposed to include lipoxygenase and hydroxylase. However, the enzyme(s) has (have) never been purified. Our interest in lipoxygenase-like enzyme stems partly from the fact that HOD is a ricinoleic acid-like compound with potential industrial applications.

The complete genomic DNA sequence of *Pseudomonas aeruginosa* PA01 (PA01) and a putative lipoxygenase gene have been reported by others (accession no. AE004547). Herein, we report: 1) PA01 can convert oleic acid to HOD and DOD; 2) amplification of the lipoxygenase-like gene from PA01 by polymerase chain reaction and cloning of the gene into pUC19.

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